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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,666	01/13/2001	Hiroaki Tsugane	15.29/5629	2708

7590 04/08/2003

Konrad Rayness & Victor, LLP
315 South Beverly Drive, Suite 210
Beverly Hills, CA 90212

EXAMINER

SCHILLINGER, LAURA M

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/759,666

Applicant(s)

TSUGANE ET AL.

Examiner

Laura M Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 15-24 is/are pending in the application.
- 4a) Of the above claim(s) 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 15-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

This Office Action is in response to Amendment B, dated 3/7/03, in Paper No.15.

Election/Restrictions

Newly submitted claim 24 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

This application contains claims directed to the following patentably distinct species of the claimed invention:

Claim 24, pertains to a memory cell comprising a MOS transistor and fails to require a DRAM as required by originally elected claims 1 and 15. Consequently, claim 24 pertains to a distinct species.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 24 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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Claims 1-8 and 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Huckels et al('959).

In reference to claim 1, Huckels teaches a method comprising:

- a) simultaneously forming a storage node of the capacitor and lower electrode of the capacitor (Fig.1 (161) and Col.2, lines: 34-40);
- b) simultaneously forming a dielectric layer of the cell and element capacitor (Fig.1 (163) and Col.2, lines: 40-45);
- c) simultaneously forming a cell plate of the capacitor and upper electrode of the capacitor element (Fig.1 (165) and Col.2, lines: 35-40).

In reference to claim 2, Huckels teaches further comprising: forming a word line and a connection layer between the lower electrode and a separate element (Col.2, lines: 45-65).

In reference to claim 3, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation(Col.3, lines: 64-68),

Wherein the first element is doped more than the second (Col.4, lines: 40-60).

In reference to claim 4, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation(Col.3, lines: 64-68),

Wherein the first element is doped more than the second (Col.4, lines: 40-60).

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In reference to claim 5, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),

Wherein the first element has impurity diffusion thus doping more than the second (Col.4, lines: 15-30 and Col.4, lines: 40-60.) [applicant should note that Huckels teaches that a large exposure to heat results in crystals formed from dopant diffusion].

In reference to claim 6, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),

Wherein the first element has impurity diffusion thus doping more than the second (Col.4, lines: 15-30 and Col.4, lines: 40-60.) [applicant should note that Huckels teaches that a large exposure to heat results in crystals formed from dopant diffusion].

In reference to claim 7, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),

Wherein the first element has a silicide layer thus less resistance than the second (Col.4, lines: 40-60 and Col.4, lines: 1-20).

In reference to claim 8, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),

Wherein the first element has a silicide layer thus less resistance than the second (Col.4, lines: 40-60 and Col.4, lines: 1-20).

In reference to claim 15, Huckels teaches a method comprising:

- a) simultaneously forming a conductive storage node of the capacitor and a conductive lower electrode of the capacitor (Fig.1 (161) and Col.2, lines: 34-40);
- b) simultaneously forming a dielectric layer of the cell and element capacitor (Fig.1 (163) and Col.2, lines: 40-45);
- c) simultaneously forming a conductive cell plate of the capacitor and a conductive upper electrode of the capacitor element (Fig.1 (165) and Col.2, lines: 35-40).

In reference to claim 16, Huckels teaches further comprising: forming a word line and a connection layer between the lower electrode and a separate element. (Col.2, lines: 45-65).

In reference to claim 17, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region, wherein the first resistance is lower than the second (Col.4, lines: 40-60).

In reference to claim 18, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),
Wherein the first element is doped more than the second (Col.4, lines: 40-60).

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In reference to claim 19, Huckels teaches wherein the etching a portion of the second conducting layer also forms a first resistance element and a second resistance element in the analog element region (Col.4, lines: 40-60).

In reference to claim 20, Huckels teaches further comprising performing at least one ion implantation of an impurity into part of the second conducting layer prior to the etching a portion of the second conducting layer (Col.3, lines: 64-68 and Fig.2A (215 and 230)).

In reference to claim 21, Huckels teaches wherein a number of ion implantations of impurity in a region where the first resistance element is to be formed is greater than a number of ion-implantations of impurity in a region where the second resistance element is to be formed so that a resistance value of the first resistance element is lower than a resistance value of the second resistance element (Col.4, lines: 50-60).

In reference to claim 22, Huckels teaches wherein, prior to the etching a portion of the second conducting layer, an impurity is diffused in a region where the first resistance element is to be formed so that a resistance value of the first resistance element is lower than a resistance value of the second resistance element (Col.4, lines: 50-60).

In reference to claim 23, wherein prior to etching a portion of the second conducting layer, a silicide layer is formed in a region where the first resistance element is to be formed so that a

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resistance value of the first resistance element is lower than a resistance value of the second resistance element (Col.2, lines: 50-55).

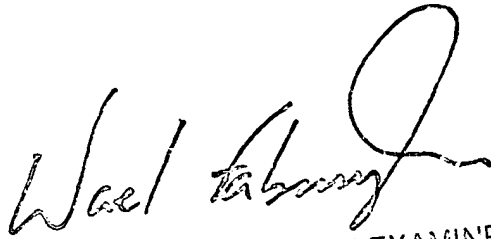
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

LMS
April 4, 2003


SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2800